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AMSAT NEWS SERVICE
ANS-129
The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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SB SAT @ AMSAT $ANS-129.01
ANS-129 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 129.01
 >From AMSAT HQ KENSINGTON, MD.
DATE May 8, 2016
To All RADIO AMATEURS
BID: $ANS-129.01

RadFxSat (Fox-1B) Launch Date

This week AMSAT Vice-President Engineering, Jerry Buxton, N0JY, said that January 20, 2017 is the planned launch date for the RadFxSat (Fox-1B) cubesat. This cubesat will fly with the Vanderbilt University radiation experiments.

RadFxSat (Fox-1B) pre-launch frequencies include:

Uplink: 435.250 MHz FM 67.0 Hz CTCSS tone
Downlink: 145.960 MHz FM
(Frequencies may vary slightly after launch; changes will be announced)

The latest versions of the Fox-1 Operating Guide can be found on AMSAT's Station and Operating Hints page at:
http://www.amsat.org/?page_id=2144

AMSAT pioneered the concept of small satellites in low orbits. AMSAT's Project Fox consists of a series of cubesats that will provide FM transponders with a 70 cm uplink with a 2 meter downlink that will match the ground performance of previous FM satellites.

AMSAT is dedicated to keeping amateur radio in space. Its membership includes a worldwide group of radio hams who monitor amateur radio satellite signals and use satellites for QSOs. They also design and build the satellites, and control them once in orbit.

Not a member of AMSAT yet?
You're invited to join on-line at:
http://store.amsat.org/catalog/index.php?cPath=32

Please consider making a donation to support the Fox-1 series of cubesats using the links on the front page
http://www.amsat.org.

[ANS thanks AMSAT Vice-President Engineering, Jerry Buxton, N0JY, for the above information]

Tomsk-TPU-120 Active On-board ISS May 10-11

As part of Tomsk Polytechnic University 120th anniversary celebrations on May 10-11, Tomsk-TPU-120 will be activated in the ISS and will transmit a greeting to Earth inhabitants, recorded by students of the University in 10 languages: Russian, English, German, French, Chinese, Arabic, Tatar, Indian, Kazakh, and Portuguese.

The 3U CubeSat was launched from Baikonur to the ISS on March 31, 2016 in a Progress-MS-2 cargo vessel. It will be deployed by hand during a future Russian spacewalk (EVA), so it has a handle. The satellite was developed by students at the Tomsk Polytechnic University to test new space materials technology and will be the world’s first space vehicle with a 3D-printed structure.

The Tomsk-TPU-120 satellite on-board the ISS will be activated May 10 from 07:55 UTC and switched off on May 11 at 10:10 UTC.

The satellite has been connected to an external ISS antenna and will transmit
messages of 20-30 seconds in 11 languages, then pause 1 minute on the satellite's transmission frequency of 437.025 MHz. The ISS will simulcast the
signal utilizing ARISS equipment on a frequency of 145.800 MHz.
Reception reports from both the ISS and from the Tomsk-TPU-120 satellite are
requested from the international amateur radio community and should be sent to Sergi at rv3dr(a)mail.ru

Amateurs are requested to refrain from transmitting on either frequency as any transmissions would interfere with reception of the test transmissions.

[ANS thanks Sergi, RV3DR and ARISS for the above information]

AMSAT at ARRL Nevada State Convention Last Weekend - report

AMSAT's long-time Area Coordinator in southern Nevada, Frank Kostelac N7ZEV, along with his wife Linda KC7IIT, usually have a booth at these events in Las Vegas and other locations in Nevada. With Linda working in a variety of roles at the convention, Frank and I took care of the AMSAT booth. Frank also had other convention-related tasks, and he was definitely busy throughout the weekend. When I arrived at the convention Friday afternoon, Frank had the booth ready to go. I set out some flyers, some equipment, and spent most of the weekend around the booth.

The day before I arrived in Las Vegas, the region had a big rainstorm. Another storm blew through southern Nevada on Saturday morning, which made travel around Las Vegas a mess, and washed out my plans for demonstrations at the convention. Instead of being outside in the rain, I had set up a couple of tablets to run videos of past demonstrations, show off SatPC32, and show what software-defined receivers can do. Frank and I talked almost non-stop for the weekend. I posted photos from the convention throughout the weekend on my @WD9EWK Twitter feed. If you want to see those photos, but don't do Twitter, you can get to the photos with a web browser at:

http://twitter.com/WD9EWK/media

Just because there was rain that washed out the demonstrations I planned to do at the convention, that didn't ruin plans for me to work satellites from Nevada. I'll post a separate message describing my operating from around Las Vegas and while driving to and from Las Vegas.

I have to thank Frank and Linda for letting me help with the AMSAT booth over the weekend. I had asked Frank about this convention a while back, and I am glad I made the trip. The NVCON organizers were all friendly, and the crowds were good, despite the Saturday rain. There were a bunch of people who came over from California, and a few from Arizona that I also saw. I will seriously consider heading back to Las Vegas the next time this event takes place up there.

[ANS thanks Patrick, WD9EWK/VA7EWK for the above information]

Contact Lost with SamSat-218D Nanosatellite

The tiny nanosatellite SamSat-218, which was launched from the Vostochny Cosmodrome on April 28, has failed to establish radio contact with mission control, several Russian media outlets are reporting. According to Interfax news agency, although the spacecraft was placed into orbit as planned, it is sending only fragmentary signals to Earth.

“Currently, fragmentary Morse code signals are being heard coming from the nanosatellite, against the background of the noise during the satellite’s pass
over the receiving station,” Interfax said in a press release.

SamSat-218, built by the Samara State Aerospace University (SSAU), is a two-unit CubeSat with a mass of only 8.8 pounds (4 kilograms) and an additional empty one-unit compartment for aerodynamic stabilization. The tiny spacecraft
was designed to demonstrate attitude stabilization by using aerodynamic forces.
It was expected to develop algorithms necessary for nanosatellite orientation
control.

The nanosatellite was launched along with the Mikhailo Lomonosov (MVL-300) and
Aist-2D spacecraft atop a Soyuz-2.1a rocket from Vostochny on the Cosmodrome's
opening mission. The flight, lasting several hours, ended in the separation of
the satellites from the launch vehicle. However, after SamSat-218 was placed into orbit, it started to spin around rapidly and probably failed to switch on.

"There are currently no sufficient grounds to believe the nanosatellite established contact. There were fragmentary weak signals at the frequency of 145.870 MHz against a background of noises when the nanosatellite was in the area of [radio visibility] of the ground control center, which can't be with confidence interpreted as signals from the satellite," Igor Belokonov, the head
of the SamSat-218 project told TASS.

The designers of the satellite are currently analyzing the data received in order to understand the nature of the problem and look for possible solutions.

According to Belokonov, the student mission control center of SSAU is continuing with attempts to receive signals from the satellite during passes above Samara.

The satellite is equipped with a radio beacon, which transmits the word "SamSat-218". Russia's radio enthusiasts are also engaged in the activities to
help establish contact with the satellite when it is in the area of the antenna
systems' coverage.

Read more at
http://www.spaceflightinsider.com/organizations/roscosmos/russia-loses-contact-with-its-nanosatellite-launched-from-vostochny/

[ANS thanks Bernhard, VA6BMJ and Spaceflightinsider.com for the above information]

Top 10 Reasons to Come to Dayton

10. Rub shoulders with 25,000 of your best friends at the largest hamfest in the United States, including all of the AMSAT Directors and senior officers.
See the latest equipment from Icom, Yaesu, Kenwood, Flex, Alinco, M2, Arrow, and many other manufacturers of amateur radio equipment and accessories. Take

advantage of discounted pricing you won't find anywhere else.

9. Find out how to organize a contact with the astronauts on the International
Space Station for your local school or youth group from our Education and ARISS
experts.

8. Pickup the latest AMSAT golf shirts, T-shirts, and hats. Get your copy of
the updated "Amateur Satellite Frequency Guide" (laminated frequency chart) and
Gould Smith's just revised "Getting Started with Amateur Satellites" (book).
We'll also have assembled wide-band preamps and antennas that are great for
portable operation.

7. See demonstrations of SatPC32 and MacDoppler satellite tracking software,
and get your operational questions answered. Meet Don Agro, author of
MacDoppler (Friday & Saturday, 2-3 p.m.). See a demonstration of the LVB
Tracker, a computer interface to the Yaesu azimuth-elevation rotors. Talk with
Mike Young, who has built more LVB Trackers than anyone else. Assembled LVB
Trackers will be available.

6. Hear a team presentation at the joint AMSAT/TAPR dinner on the new AMSAT
Ground Terminal (AGT). AGT is using Five and Dime (5 GHz uplink, 10 GHz
downlink) technology that is being developed for the Phase 3E (P3E) HEO
satellite, the Phase 4B (P4B) geosynchronous satellite, and the Cube Quest
Challenge (CQC) lunar mission. While much of the P3E and P4B *satellite*
development is classified, the AGT is all open source and public information.

5. Hear the latest on the *five* Fox satellites, P3E, P4B, CQC, the
International Space Station, other current and future satellites, education
news, and an AMSAT update at the AMSAT Forum Saturday, from 11:15 to 1:30.

4. Get one-on-one guidance on setting up your satellite station and making
contacts at our "Beginner's Corner". Witness live demonstrations of contacts
through satellites AO-7, AO-73, AO-85, FO-29, SO-50, XW-2A, XW-2C, and XW-2F
using handheld antennas.

3. Meet and interact with some of the Engineering Team members working on the
Fox-1 satellites and our new Five and Dime AMSAT ground terminal. Learn all of
the public information and get breaking news on the Virginia Tech plans for the
Phase 3E and Phase 4B satellites.

2. Get satellite station and operating tips from some of the best satellite
operators in the country, including John Papay K8YSE (1,575 grids confirmed),
Doug Papay KD8CAO (1,159 grids), Drew Glasbrenner KO4MA (1,343 grids), Paul
Stoetzer (450 grids), and Wyatt Dirks AC0RA (938 grids).

1. Receive special premiums when you join or renew your AMSAT membership at
Dayton, including an updated "Amateur Satellite Frequency Guide" (laminated
frequency chart), and special pricing on the SatPC32 satellite tracking
software.

[ANS thanks Steve Belter, N9IP, Dayton Team Leader for the above

information]

AMSAT at the Dayton Hamvention -- Last Call for Volunteers

The Dayton Hamvention is less than two weeks away, May 20-22!

If you've been waiting to volunteer until you'd firmed up your plans, we need to hear from you ASAP!

If you're an experienced satellite operator, we can use you and your experience. If you've never operated a satellite before, we can use your help too. Whether you're available for only a couple of hours or if you can spend the entire weekend with us, your help would be greatly appreciated.

Please send an e-mail to Steve, n9ip(a)amsat.org if you can help. Thank you!

[ANS thanks Steve Belter, N9IP, Dayton Team Leader for the above information]

AIST-2D and SamSat-218D Satellites Launched

Two Russian satellites AIST-2D and SamSat-218D operating in the Amateur bands were launched on April 28, 2016 at 02:01 UT on a Soyuz 2-1A launch vehicle from the new Vostochny Cosmodrome located in the Amur Oblast. The satellites were placed into a 471 km × 485 km orbit with a 97.3° inclination.

AIST-2D weighs 500 kg and is a technology demonstration and scientific research satellite developed at Samara Aerospace University.

The 3U CubeSat SamSat-218 was developed by students at the Samara State University and weighs just 4 kg.

Frequency information from Dmitry R4UAB

http://r4uab.ru/?p=11842

AIST-2D / RS-48 Downlinks
• 435.3065 – 435.3235 MHz Telemetry Data
• 435.3565 – 435.3735 MHz Telemetry Data
• 433 – 438 MHz 200 watt Synthetic Aperture Radar (SAR)
• 8025 – 8393 MHz Remote Sensing Data

http://spaceflight101.com/soyuz-lomonosov/aist-2d/

SamSat-218D
• 145.870 MHz Morse CW beacon transmits "SamSat-218D" every 150 seconds (or 30 seconds)
• 145.850 – 145.890 MHz TRXSSAU downlink
• 435.590 – 435.610 MHz TRXSSAU uplink

http://spaceflight101.com/soyuz-lomonosov/samsat-218d/

Russian post on SamSat-218D
http://zelenyikot.livejournal.com/94190.html
Google English translation
https://translate.google.com/translate?hl=en&sl=auto&tl=en&u=http%3A%2F%2
Fzelenyikot.livejournal.com%2F94190.html&sandbox=1

432-438 MHz was allocated to the Earth Exploration Satellite Service
(Active) at WRC-03

https://www.itu.int/dms_pubrec/itu-r/rec/sa/R-REC-SA.1260-1-200305-S!!PDF-E.pdf

September 2003 issue of QST magazine has an article on page 44 by VE3PU on
satellite-based Synthetic Aperture Radar (SAR) in 432-438 MHz (ARRL members
only)

http://p1k.arrl.org/pubs_archive/104721

[ANS thanks AMSAT-UK for the above information]

No Need for Panic Regarding Synthetic Aperture Radars on
70 Centimeters, ARRL CTO Says

A recent BBC news article regarding a synthetic aperture radar (SAR)
contract
award for operation within the 70 centimeter band has raised some concern
within the Amateur Radio community. The contract to Airbus Space would
involve
determining the density of Earth’s forests using a P-band (432-438 MHz) SAR.
That band segment was allocated for use by the Earth Exploration Satellite
(Active) Service at World Radiocommunication Conference 2003 (WRC-03). ARRL
Chief Technology Officer Brennan Price, N4QX, said SAR activity has not been
found to be a significant problem to Amateur Radio activity on the 70
centimeter band. Both EESS (Active) and Amateur Radio are secondary on
the band
in International Telecommunication Union (ITU) Regions 2 and 3 (Amateur
Radio
is co-primary with the Radiolocation Service in ITU Region 1), and Price
said
SAR operation is subject to significant constraints.

“The interference potential from one orbiting SAR to one fixed Amateur Radio
station is on the order of less than 1 minute over an orbital period of more
than 10 days,” Price said. “Practically speaking, nearby electrical
lines and
Part 15 devices are more likely to be bothersome.”

Price said news items in articles aimed at the general public are “often
notoriously short” on technical details. ITU-R Recommendation RS.1260-11 —
incorporated by reference in the ITU Radio Regulations and binding on EESS
(Active) stations — spells out the WRC-03 consensus on SARs operating at 70
centimeters. Among other things, RS.1260-1 states that EESS (Active)
instruments operation profile “shall be campaign-oriented, targeted to
specific
geographical areas and shall limit the instrument active time to the minimum
required to achieve the campaign objectives. Thus, the measurements
carried out
by the instrument do not require continuous operation of the instrument, and

intervals of months between successive measurements on the same area can be expected.” The Recommendation further states that the operational duty cycle of
an SAR in campaign mode will be 15 percent (typically 10 percent).

A Russian satellite, AIST-2D, launched on April 28, will conduct SAR work as a
technology demonstration and scientific research satellite developed at Samara
Aerospace University. Its 200 W SAR will operate in the 433-438 MHz band. It will also transmit telemetry in the 70 centimeter band.

http://www.arrl.org/news/view/no-need-for-panic-regarding-synthetic-aperture-radars-on-70-centimeters-arrl-cto-says

[ANS thanks the ARRL and Trevor, M5AKA for the above information]

AMSAT Events

Information about AMSAT activities at other important events around the country. Examples of these events are radio club meetings where AMSAT Area Coordinators give presentations, demonstrations of working amateur satellites, and hamfests with an AMSAT presence (a table with AMSAT literature and merchandise, sometimes also with presentations, forums, and/or demonstrations).

*Saturday, 14 May 2016 – Matanuska Amateur Radio Association Hamfest in Wasilla AK

*Friday, Saturday, & Sunday, 20-22 May - HamVention at Harra Arena Dayton, Ohio

*Saturday, 4 June 2016 – White Mountain Hamfest in Show Low AZ

*Saturday, 13 August 2016 – KL7KC Hamfest in Fairbanks AK

[ANS thanks AMSAT-NA for the above information]

ARISS News

Successful Contacts

* A direct contact via GB1APS with students at Ashfield Primary School, Otley, West Yorkshire, UK, was successful Thu 2016-05-05 08:08:09 UTC 46 deg. Astronaut Timothy Peake, KG5BVI answered 16 questions for an audience of 200 students.

Ashfield Primary School is in Otley, West Yorkshire, a historic market town to the north west of Leeds. The school has a fantastic semi-rural location with extensive grounds encompassing a playground, school field, wildlife area, magic garden and a specific outdoor area for Early Years. The school is a community primary school with one form entry. We have 240 children

aged 3 to 11.

Ashfield is also the site for the North West Leeds Area Inclusions Partnership's Learning Support Center. The Orchard Center educates pupils from the area who are experiencing difficulties which affect their learning.

Our vision is that children, parents and carers, staff and governors work actively together to ensure children receive a rich inspiring and engaging education enabling each child to become lifelong learners, aspiring to high standards of achievement in all areas of their life. As part of this rich inspiring and engaging education, pupils run a stall at the annual Otley Science Festival and recently hosted a space themed Science, Technology, Engineering and Maths festival within the school. All Ashfield classes ran stalls to inform, challenge and entertain each other. We had visitors from all seven local schools, who designed informative exhibitions to share. Exhibitors also came from Otley Amateur Radio Society, Leeds University, The Radio Society of Great Britain, Bradford Astronomy Society and Eureka Museum and worked with the children on STEM related topics. Dr Marty Jopson
also created and presented a space related science show in the evening."

* All Saints STEAM Academy (AS2A), Middletown, Rhode Island, direct via N1ASA
The ISS callsign was NA1SS
The astronaut was Jeff Williams KD5TVQ
Contact was successful: Fri 2016-05-06 16:43:47 UTC

The contact went well, all 24 questions were answered and there was still time for a "73 Round."

An exceptional video is at:
https://www.youtube.com/watch?v=oTkq5btNW_U

Upcoming Contacts

* A direct contact via GB1OSM with students at The Kings School, Ottery St Mary, Devon, UK, is scheduled for Mon 2016-05-09 09:26:30 UTC 62 deg The scheduled astronaut is Timothy Peake KG5BVI. Watch for HamTV during this contact.

The King's School is an 11-18 comprehensive school with approximately 1150 students of which 230 are in the Sixth Form. It has a long and proud history that can be traced back to a fourteenth century choir school which was replaced
in 1545 by Henry VIII in 1545 with "The King's School".

Although The King's School became an academy in 2011 we continue to work in close partnership with Devon County Council and our fellow secondary schools to
ensure that we offer the best educational opportunities possible. Our inclusive
philosophy of "Achievement for All" encapsulates our belief that every person
who enters The King's School has unique skills and potential which we believe
we have the creativity and ability to unlock.

We were graded Outstanding by OfSTED in 2011, and in the latest 2014 OfSTED inspection we were again graded Outstanding but this time in every category. The report endorsed the school's belief that its ethos has a hugely positive impact on student achievement.

We are extremely proud of our students and of the brilliant examination results they achieve year on year. However, we are also incredibly proud of the myriad of extra-curricular activities in which they are involved. This richness of opportunity is central to what we believe develops our students into well rounded young people. We are very much a community school, working very closely with our hugely supportive parents, Governors, excellent partner
primary schools, local business representatives and a wide range of other agencies to provide opportunities for all.

* A telebridge contact via K6DUE with students at H.A.L. School, Lucknow, India is scheduled for Thu 2016-05-12 08:11:20 UTC 79 deg. The scheduled astronaut is Tim Kopra KE5UDN.

Nestled in cozy, lush green and safe sphere is the prestigious education hub HAL School has inscribed a saga of success! Installed in 1974, the school has
come a long way. The visionary founders dreamed of an ideal and prosperous institution whose torch bearers and pupils would write a history of academic excellence besides versatility in additional activities. Teachers burnt midnight oil and left no stone unturned and the students responded with equal
dedication and brought laurels. Being a member of HAL factory, school frequently bore the responsibility of hosting memorable guests from Russia and
celebrities like first Indian astronaut Wg.cdr Rakesh Sharma (Retd), President
(Late) APJ Abdul Kalam etc.

The school not only organized but also participated in major events organized
by HAL Factory year by year. The recent activity which has caught momentum is
ARISS (Amateur Radio on the International Space Station) which is active all the world over and now has come as a great opportunity for HAL School to be the
first in state (Uttar Pradesh) to contact with International Space Station and
eminent astronauts, participate in seminars, presentations and workshops and associate themselves with radio academically. The School has been involved in
many Amateur Radio activities like Amateur radio demonstration for students, JOTA for Scouts & Guides etc. There were 6 students who took the Amateur Radio
licenses during their studies in school.

Workshops by eminent counselors/experts/guest faculty/agencies from various fields benefited the students in personality development and career counseling/awareness/advice. Year by year the number of such sessions has multiplied and continues till date. The concrete and farsighted plans and strategies are being worked upon. Innovation, modification, changes and publicity efforts are on to make better the things. The improved education, basic facilities, performance of both teacher and taught, inclusion of teachers
training/orientation programs are in pipe line for makeover of the school.

* A telebridge contact via W6SRJ with students at AstroNuts Kids Space Club Academy, Duncan Observatory, Richmond Hill, Ontario, Canada, is scheduled for
Sat 2016-05-14 17:37:12 UTC 33 deg. The scheduled astronaut is Timothy Peake
KG5BVI.

The “Whats up in Space” Camp & STEM Contest was created by a 13 year-old,

Brett Bielecki and father Ray, 5 years ago in order to ignite the curiosities
of hundreds of elementary school children to learn about “all things space”. Our volunteer-based space camp is held at the world famous David Dunlap Observatory in Richmond Hill Ontario where the children are engaged and inspired by 20 volunteer space educators, multiple Skype guests and educational
activities in a fun and educational setting. The children’s STEM contest brings
together dozens of innovative future astronauts, scientists educators and engineers in the spirit of competition. Our space camp was launched because of
the high interest for space education by elementary school students, their parents and teachers when they recognized the value of the “AstroNuts kids space club."

Watch
http://www.ariss.org/upcoming-contacts.html
for information about upcoming contacts as they are scheduled.

[ANS thanks ARISS, Dave, AA4KN, and Charlie, AJ9N for the above information]

Satellite Shorts From All Over

Biomass 432-438 MHz Synthetic Aperture Radar Satellite

BBC News report: UK wins satellite contract to 'weigh' Earth's forests with P-Band 432-438 MHz Synthetic Aperture Radar (SAR)

http://www.bbc.co.uk/news/science-environment-36195562

BBC news story says P-Band 432-438 MHz Synthetic Aperture Radar has never before been flown in space - this is not strictly true as AIST-2D launched a few days ago carries one.

[ANS thanks Trevor, M5AKA for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive addi-tional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the stu-dent rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
Joe Spier, K6WAO

k6wao at amsat dot org